

MS146 Barcode Slot Reader



Quick Guide

8013-0110000

Product Overview

The MS146 bar code slot reader is a flexible, cost effective scanning solution. With a resolution of up to 6 mils, the MS146 is capable of reading any bar coded identification badge. Its sealed optical system is available in both visible light or infrared. The infrared units ensure accurate reading of visible and laminated badges. Its water resistant base, rugged housing, and IP54 rated sealing make the MS146 ideal for harsh environments. An optional mounting bracket is available to safely secure the unit in any direction.

Cable Pin Assignment:

1.) AMP (D-Sub 9 Female):

Pin	Signal
2	Data
7	GND
9	+5VCC

2.) PS/2 (Din 5 Male):

Pin	Signal
1	KB-Clk
2	KB-Data
3	NC
4	GND
5	+5VCC

3.) RS232 (D-Sub 9 Female):

Pin	Signal
2	TXD(Out)
3	RXD(In)
5	GND
7	CTS(In)
8	RTS(Out)
9	+5VCC

4.) USB (Type A Male):

Pin	Signal
1	+5VCC
2	Data -
3	Data +
4	GND

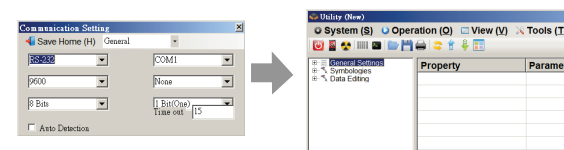
Install Software Utility (Ez Utility)

Ez Utility software utility is the simplest and most user-friendly way to configure your scanner settings. Before the installation please plug the cable to the USB/RS232/PS/2 port of the host PC.

- Go to www.ute.com
- Find the MS146 section, and download the EzUtility-setup.
- Execute "EzUtility-setup.exe" to initiate the installation.

Configure the Scanner

- Click on Ez Utility icon from your desktop to launch EZU program
- In Communication Setting window, select "General" as genre, select "USB", "RS232" or "PS2" according to the interface of your product.
- Click [Save Home (H)] to continue.



- (*Note: Call for help please press [F1] when the program is running.)
- Click on icon on the toolbar to retrieve scanner's parameters.
 - Double click on the items you want to edit and then press [Enter] to save changes.
 - Click on icon on the toolbar to update scanner's parameters.

Icon	Function	Description
	Retrieve Scanner's Parameters	Retrieve scanner's current parameters onto the main window.
	Update Scanner's Parameters	Upload the parameters shown in the main window to the scanner.
	Default	Click this icon can conduct one of the following functions: 1. Undo all changes 2. Reset current parameters to default 3. Reset scanner parameters to default
	Open	Load settings from a saved file.
	Save	The scanner settings will saved as *.txt or *.bin file, so you can have access to a variety of different scanner configurations that you've set up.

Function Description

- Mode and Interface

Property	Parameter
Computer Type	PC - AT
Interface	RS-232
Reading Mode	Trigger Mode
Terminator	CR + LF
Send Data Length	Off
Code ID	Disable Code ID

Computer Type	Select the device which the scanner is connected.
Interface	Select the interface for making data-input.
Reading Mode	Default is Trigger Mode
Terminator	The terminator is a command that follows the input of barcode data. Default is "CR" for USB & KB, and "CR+LF" for RS232.
Send Data Length	Default is Off.

<Code ID>

The Code ID function can be used to identify the type of bar code that is being scanned by inserting an identifying letter at the beginning of the bar code output. For example, if the Code ID function is on, and a bar code string of "54321" was output as "M54321", the bar code would thus be identified as type Code 39. Default is "Disable".

Double Verification enables the scanner to verify the accuracy of the output by outputting only after a specified number (from 0 to 7) of identical results. For instance, if 3 is selected, the scanner will not output the bar code data until it's obtained 4 identical scan results. Because the scanner normally scans at a rate of 33 scans per second (unless it's a wand), this process should take less than a fraction of a second, even for higher values. Default is "0-Off"

- 1 -

- 2 -

- 3 -

SYMBOLOGIES CODE ID IDENTIFIER					
Symbologies	Factory ID	AIM ID (new)	Symbologies	Factory ID	AIM ID (new)
EAN 128	T	JC1	MSI	O	JM0
Code 128	K	JCO	MSI(MOD 10 / CDV & not send CD)		JM1
EAN8(+2/+5 OFF)		JE4	Code 32	B	JX0
EAN8(+2 ON)	S	JE4	Codabar		JF0
EAN8(+5 ON)		JE4	Codabar(ABC Codabar)	N	JF1
UPC-E(+2/+5 OFF)		JE0	Codabar(CDV & Send CD)		JF2
UPC-E(+2 ON)	E	JE3	Codabar(CDV & not send CD)		JF4
UPC-E(+5 ON)		JE3	UK Plessey	P	JP0
UPC-A(+2/+5 OFF)		JE0	Matrix 2 of 5	Y	JX0
UPC-A(+2 ON)	A	JE3	Full ASCII Code 39(disable CDV)		JA4
UPC-A(+5 ON)		JE3	Full ASCII Code 39(CDV & send CD)	D	JA5
EAN-13(+2/+5 OFF)		JE0	Full ASCII Code 39(CDV & not send CD)		JA7
EAN-13(+2 ON)	F	JE3	Standard Code 39(disable CDV)		JA0
EAN-13(+5 ON)		JE3	Standard Code 39(CDV & send CD)	M	JA1
Code 93	L	JG0	Standard Code 39(CDV & not send CD)		JA3
Code 11(disable CDV)		JH0	Interleaved 2 of 5(CDV & send CD)		JH1
Code 11(send one CD)	J	JH0	Interleaved 2 of 5(CDV & not send CD)	I	JH3
Code 11(not send CD)		JH1	Interleaved 2 of 5(disable CDV)		JH0
Telepen(ASCII)		JH3	Databar		
Telepen(Numeric)	U	JB0	Databar Stacked	G	
LATA 2 of 5	R	JR0	Databar Stacked Omnidirectional		Jc0
Industrial 2 of 5	V	JS0	Databar Truncated		
China Post Code	H	JX0	Databar Limited	C	
PDF417	Z	JE0	Databar Expanded	Q	
			Databar Expanded Stacked		

- Buzzer and KB timing

Property	Parameter
Beep Tone	(2.7K Hz)Beep Medium
Interblock Delay	0 ms
Intercharacter Delay	140 us
Accuracy Adjustment	0 num

Beep Tone	Select a value from "None" to "High" to set the loudness of the tone. Default is (2K Hz) Beep Medium.
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Interblock Delay	Interblock delay is the time duration that can be inserted between one block of data and another. This function is analogous to the time duration required between dialing a phone number's country code and the phone number itself. The interblock delay can be inserted via SCM's Data Editing function. Default is "0 ms".
Intercharacter Delay	Intercharacter Delay is the time duration between data characters sent from the scanner to the computer. Intercharacter delay is usually inserted when the data flow must be slowed down for the benefit of a slower computer. Default is "140 us".

<Accuracy Adjustment>

Accuracy Adjustment assures a more reliable decoded output. Enabling the feature and setting a number from 1 to 9 subjects the decoded output a higher standard of accuracy. The higher the number, the greater the accuracy.

SETTING PROCEDURE:

- Select one digit (1-9) from SCM Menu.
- Click "OK" to adjust accuracy.

- Others

Property	Parameter
Setup Code	Enable
Preamble	
Postamble	
Label Type	Positive

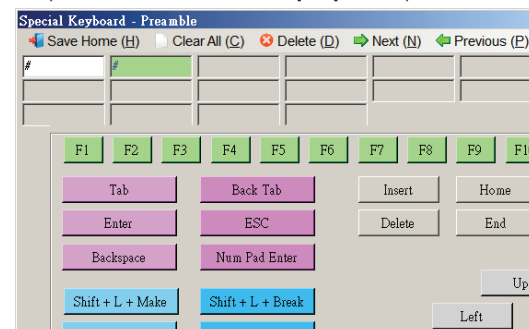
Label Type	Toggle between reading only Positive and both Positive and Negative (with the black and white areas reversed) bar codes. Reading both positive and negative bar codes can be useful in the graphics industry when negative images must be proofed. Default is "Positive & Negative"
Setup Code	Default is Disable.

<Preamble & Postamble (Prefix and Suffix)>

EXAMPLE:
Set PREAMBLE String as " ## "
POSTAMBLE String as " \$\$ "

Setting Procedure:

- Double click Preamble, and a Special Keyboard window will show up.
- Input "##" in the first column and click [Next] before input the second "#".



- Click [Save Home] to save changes.
- Double click Postamble and input two "\$" in the same way as Preamble.

*Format: { Preamble } { CodeID } { Bar Code } { Postamble }

Note:

- A preamble is a string of up to 16 characters added to the beginning of a scanned barcode.
- A postamble is a string of up to 16 characters added to the end of a scanned barcode.
- Default value for either: None.

- Keyboard (PS2) & RS232

This function is for user to set up the parameters of the interface for making the data input. There are Keyboard (PS/2) and RS-232.

- Symbologies

This function is for user to set up the parameters of all kinds of barcodes.

- Data Edit

The advanced function is for special requirement; it's recommended to keep the

Property	Parameter
Force Data Edit	Disable
Format On / Off	Format All Off

Trouble Shooting

Most problems that you might encounter with your scanner can be solved using the following procedures:

• Try scanning other bar codes.

If your scanner can scan other types of bar code symbologies, but cannot scan your bar codes, first check to see if your particular bar code symbology is enabled. If it is, try the scanner on the same bar code type in the Bar Code Test Chart in the back of this manual. Then, ensure that your bar codes are crisp and clear.

• Reset to Factory Default.

While the Ez Utility program is active, please click icon on the toolbar to

- 4 -

- 5 -

- 6 -

- 7 -


reset the scanner back to factory default.

*Notice: This procedure will erase special configurations that you would have created.

• Test the scanner on other ports.

Our scanners are built to the highest standards, and a perceived scanner malfunction may actually be a malfunction in the host computer. Test the scanner on the host's other ports if possible or, if necessary, on other systems to verify that the problem is actually in the scanner and not in the host computer.

Q4. Ez Utility cannot upload or download

Ez Utility can currently conduct two-way communication (upload and download) in all Windows operating system (NT excluded). If you have a different OS, or the download function doesn't work, set up your scanner's configuration in EZU off-line. And then, instead of uploading, click the  icon on the toolbar to print out the configuration barcodes so that you can then cut them into barcode strips and swipe them respectively to configure the scanner manually.

Warranty

Limited Hardware Warranty

The Limited Warranty terms described below are solely applicable to the customer of . This warranty applies to equipment only. All consumables and accessories are exempted.

We warrant the products to be delivered free from defects in material and workmanship, from the date of purchase. All equipment except for cables, batteries, power supplies, and RF cards are warranted for a period of twelve month (beginning from the month of delivery). Some products may have longer warranties, but all products (except for cables, batteries, power supplies, and RF cards) carry at least a one year warranty. All cables, batteries, power supplies, and RF cards external to dedicated products carry a ninety day warranty.

During this warranty period will, at its sole discretion, replace or repair free of charge any product(s) which, in its opinion, is/are defective. Any merchandise that is to be returned must have a valid Return Merchandise Authorization (RMA) number clearly indicated on the outside of the returned package and on the accompanying packing list. We cannot be held responsible for any package returned without a RMA number. To obtain a RMA number, please contact 's Customer Service Department or Sales Representative of your local distributor.

The Customer is responsible for packing the defective product properly, and for the cost of shipping the defective product to. The distributor is responsible for shipping back the product which is repaired or replaced. If any charges borne by the Customer, the invoice for the repaired or replaced product(s) will be sent to the Customer's payment terms.

In the event that the product has been modified without 's consent or if the product failure is the result of misuse, abuse, willful neglect or misapplication. We have no

obligation to repair or replace the product.

Except as expressly mentioned above, the hardware and accompanying written materials (including the user's manual) are provided "as is" without warranty of any kind, including the implied warranties of merchant ability and fitness for a particular purpose, even if has been advised of that purpose. In no event will be liable for any direct, indirect, consequential, or incidental damages arising out of the use of or inability to use such product(s), even if has been advised of the possibility of such damages.

Specifications

PERFORMANCE	
Light Source	Visible Light: 660nm LED Infrared Light: 940nm LED
Depth of field	0.7 inch
Sensor	Photo diode
Resolution	0.152mm (6 mil)
Print Contrast Ratio	60%
Scan rate	2.0" - 30" per second
MECHANICAL / ELECTRICAL	
Dimensions	3.75"H x 1.375"W x 1.875"D
Max Card Thickness	54 mils (.054", 1.37mm)
Voltage	5 VDC ± 5%
Working Current	<120 mA (Visible light); <110mA (Infrared)
DECODER	
Cable Type	AMP, PS/2, RS232 or USB
Configuration	Configurable by software utility (EZU) available on CD
Symbologies	UPC-A, UPC-E, EAN-8, EAN-13, Industrial 2 of 5, Codabar, Matrix 2 of 5, code 11, Code 93, Code 32, Code 128, Standard Code 39, Full ASCII Code 39, Interleaved 2 of 5, China Postal Code, MSI Plessey Code, UK Plessey Code, EAN/UCC 128, Telepen Code, IATA Code
ENVIRONMENTAL	

Temperature	Operating: 0~50°C (32 to 122°F) Storage: -20~60°C (4 to 140°F)
Humidity	0% to 95% (non-condensing)
Mechanical shock:	1.6 M drop to concrete

Appendix 1 -Default Table

PARAMETER	DEFAULT	PARAMETER	DEFAULT
Computer Type	PC-AT	Cadabar	Enable
Interfaces	+	Telepen	Disable
Beep Tone Mode 2.1k	1.Beep Medium	UPC-A	Enable
Capital lock Mode	3.Caplock Off	UPC-E	Enable
Preamble & Postamble	Off	EAN-8	Enable
Enable & Disable Code ID	Off	EAN-13	Enable
Interblock Delay	0 ms	MSI	Disable
Inter-character Delay	140us	Code 39	Enable
Keyboard Layout	English(USA)	Code 11	Enable
Terminator	CR, CR+LF	Code 93	Disable
Baud Rate	9600	EAN-128	Enable
Data Bits & Parity	8 Bit None	IATA	Disable
Stop Bits	1 stop bit	China Post Code	
Handshaking	None	Enable/Disable	Enable
ACK/NAK	Off	Check Digits	Disable CDV
Flow Control TimeOut	1 Sec	Min Length	11 digits
Enable and Disable Symbologies		Max Length	48 digits
Code 32	Disable	Code 32	
China Postal Code	Enable	Enable/Disable	Disable
UK Plessey Code	Disable	Leading send/not send	send
Industrial 2 of 5	Disable	MSI	
Matrix 2 of 5	Disable	Enable/Disable	Disable
Interleaved 2 of 5	Enable	Check Digits	CDV & send CD
Code 128	Enable	Check Digits Mode	Single MOD 10

Table 2

PARAMETER	DEFAULT	PARAMETER	DEFAULT
UK Plessey		Matrix 2 of 5	
Enable/Disable	Disable	Enable/Disable	Disable
Check Digits	CDV & not send CD	Check Digits	Disable CDV
		Min Length	6 digits
		Max Length	48 digits
IATA			
Enable/ Disable	Disable	Codabar	
Check Digits	Disable CDV	Enable/Disable	Enable
Min Length	6 digits	Disable CDV	Enable CDV
Max Length	48 digits	Min Length	6 digits
		Max Length	48 digits
Code 93			
Enable/Disable	Disable	ST/SP:Abcd/abcd,abcd/tn*c,	ABCD/ABCD
Min Length	6 digits	ABCD/ABCD,ABCD/TN*C	
Max Length	48 digits		
Telepen		Start(ST)/Stop(SP)send	Send
Enable/Disable	Disable	CLSI Format	On
Telepen ASCII /Number	Number	ABC-Codabar	On/OFF
		ON/OFF	Off
Interlvened 2 of 5		Insert Data	Off
Enable/Disable	Enable	CX-Codabar	Off
Check Digits	Disable CDV	ON/OFF	Off
First/ last digit suppressed	No suppressed	Insert Data	Off
Min Length	6 digits		
Max Length	48 digits	Codabar-Coupling	Off
		ON/OFF	Off
Code 11		Insert Data	Off
Enable/Disable	Disable	Adjacent Required	Off
Check Digits	Disable CDV		
Min Length	6 digits	Code 39	
Max Length	32 digits	Full ASCII 39 Enable/Disable	Enable
Industrial 2 of 5			
Enable/Disable	Disable	Check Digits	Disable CDV
Check Digits	Disable CDV	Start/Stop	Not Send
Min Length	6 digits	Min Length	1 digits
Max Length	48 digits	Max Length	48 digits

Table 3

PARAMETER	DEFAULT	PARAMETER	DEFAULT
UPC-E		EAN-13	
Enable/Disable	Enable	Enable/Disable	Enable
Check Digits	Send	Check Digits	Send
Lead Digits	Send	Lead Digits	Send
Add a space	Off	Add a space	Off
Addenda required	Off	Addenda required	Off
+5 On/Off	Off	+5 On/Off	Off
+2 On/Off	Off	+2 On/Off	Off
		ISSN On/Off	Off
		ISBN	Off
UPC-E systems number			
UPC E(0) On/Off	On	EAN/UCC128	
UPC E(1) On/Off	Off	Enable/Disable	Enable
UPC-E expand to UPC-A	Disable	Code ID	Disable
		Func 1 Clear send	Not Send
UPC-A expand to EAN13	Disable	Code 128	
UPC-A		Enable/Disable	Enable
Enable/Disable	Enable	Check Digits	Disable CDV
Check Digits	Send	Min Length	5 digits
Lead Digits	Send	Max Length	48 digits
Add a space	Off		
Addenda required	Off		
+5 On/Off	Off		
+2 On/Off	Off		
EAN-8			
Enable/Disable	Enable		
Check Digits	Send		
Lead Digits	Send		
Add a space	Off		
Addenda required	Off		
+5 On/Off	Off		
+2 On/Off	Off		

Appendix 2- Barcode Test Chart



EAN-13



MSI Code



UPC-A



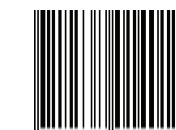
Interleaved 2 of 5



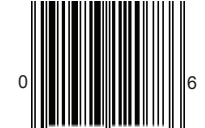
Standard 2 of 5

Medium Density

Density	Narrow mm(mil)	Wide mm(mil)	Char.Gap mm(mil)	N/W RATIO
Medium Density	0.25(10)	0.625(25)	0.25(10)	1/2.5



EAN-13



UPC-A



Interleaved 2 of 5



NW-7 (Codabar)



Code 39